



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	:	
Leslie BROMBERG, et al.	:	Customer Number: 24280
	:	
Appl. No.: 10/715,933	:	Art Unit: 3747
	:	
Filed: November 17, 2003	:	Examiner: BENTON, Jason
	:	
For: HOMOGENEOUS CHARGE	:	Atty Docket: 0492611-0529
COMPRESSION IGNITION	:	
CONTROL UTILIZING	:	
PLASMATRON FUEL CONVERTER	:	
TECHNOLOGY	:	

**CERTIFICATE OF MAILING**

I hereby certify that the foregoing document is being deposited with the United States Postal Service as first-class mail, postage prepaid, "Post Office to Addressee", in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on March 14, 2005.

*Alison L. Barnett*  
Alison L. Barnett

Mail Stop Amendment  
COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**INFORMATION DISCLOSURE STATEMENT**

Pursuant to the duty of disclosure under 37 C.F.R. §§1.56, 1.97 and 1.98, Applicants respectfully request consideration of this Information Disclosure Statement.

**PART I: Compliance with 37 C.F.R. §1.97**

(Select A, B or C below)

A. ☐ This Information Disclosure Statement has been filed:

(check 1, 2 and/or 3 below)

1. ☐ within three months of the filing date of the above identified U.S. Patent application;

3877141\_1.DOC

03/17/2005 BABRAHA1 00000042 10715933

-1-

01 FC:1806

180.00 OP

2. ☐ within three months of the filing date of the entry of the National Stage, as set forth in 37 C.F.R. §1.491, in an International application; and/or
3. ☐ before the mailing date of the first Office Action on the merits in the above-identified application.

No fee or certification is required.

- B. ☒ This Information Disclosure Statement has been filed more than three months after the filing date of the present application and after the mailing date of this first Office Action, but before the mailing date of either a final action under 37 C.F.R. §1.113 or a Notice of Allowance under 37 C.F.R. §1.311.

(check 1 or 2 below)

1. ☒ The fee of \$180 as set forth in 37 C.F.R. §1.17(p) is enclosed; or
2. ☐ Applicants hereby certify, as specified in 37 C.F.R. §1.97(e), that  
(check a or b below)
  - a. ☐ each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign Patent Office in a counterpart for this application not more than three months prior to the filing of this Statement; or
  - b. ☐ no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign Patent Office in a counterpart for this application or, to the knowledge of the undersigned after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Statement.
  - c. ☐ items indicated by an asterisk were identified in a recent review of related files.

- C. ☐ This Information Disclosure Statement has been filed after the mailing date of either a Final action under 37 C.F.R. §1.113 or a Notice of Allowance under 37 C.F.R. §1.311 and before payment of an Issue Fee.  
(check 1 and 2 below)
1. ☐ The Applicant hereby certifies, as specified in 37 C.F.R. §1.97(e), that:  
(check a or b below)
- a. ☐ each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign Patent Office in a counterpart for this application not more than three months prior to the filing of this Statement.
- b. ☐ no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign Patent Office in a counterpart for this application or, to the knowledge of the undersigned after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Statement.
2. ☐ The Fee of \$180 as set forth in 37 C.F.R. §1.17(i)(1) is enclosed.

**PART II - Information Cited**

- A. ☒ The Applicant hereby makes of record in the above-identified application the reference(s) listed on the attached form PTO-1449 (modified). The order of presentation of the references should not be construed as an indication of the importance of the references.
- B. ☐ The Applicant hereby makes the following additional information of record in the above-identified application:

**PART III: Explanation of Non-English Language References and Remarks Concerning Other Information Cited**

- A.     ☐     The following is a concise explanation of the relevance of each non-English language reference listed on the attached form PTO-1449 (modified):
- B.     ☐     The following are remarks concerning the other information cited:

**PART IV: Remarks**

A.     Copies of references

(check 1 or 2 below)

1.     ☒     A copy of each of the references cited on the attached form PTO-1449 (modified) is enclosed, except for U.S. patents and U.S. patent application publications for which the submission requirement has been waived by the PTO in the Official Gazette Notice of August 5, 2003, for applications filed after June 30, 2003;
2.     ☐     Copies of certain of the references cited on the attached form PTO-1449 (modified) are not enclosed because each of these references (indicated by a check mark ✓) was previously cited by or submitted to the Office in a prior application, XXXXX, which prior application is relied upon for an earlier filing date under 35 U.S.C. § 120.

B.     It is respectfully requested that:

1.     The Examiner consider completely the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims;
2.     The enclosed form PTO-1449 be signed by the Examiner to evidence that the cited patent(s) and publication(s) has (have) been fully considered by the Patent and Trademark Office during the examination of this application;
3.     The citations for the patent(s) and publication(s) be printed on any patent which issues from this application.


- C. By submitting this Information Disclosure Statement, Applicants make no representation that a search has been performed, of the extent of any search performed, or that more material information may not exist.
- D. By submitting this Information Disclosure Statement, Applicants make no representation that the information cited in the Statement is, or is considered to be, material to patentability as defined in 37 C.F.R. §1.56(b).
- E. By submitting this Information Disclosure Statement, Applicants make no representation that the information cited in the Statement is, or is considered to be, in fact, prior art as defined by 35 U.S.C. §102.
- F. Notwithstanding any statements by Applicants, the Examiner is urged to form his or her own conclusions regarding the relevance of the cited reference(s).

An early and favorable action is hereby requested.

Please charge any additional fees or credit any overpayments to our Deposit Account No. 03-1721.

Respectfully submitted,  
CHOATE, HALL & STEWART LLP

Date: March 14, 2005

  
Elijah E. Cocks  
Registration Number 47,499

Patent Group  
CHOATE, HALL & STEWART LLP  
Exchange Place  
53 State Street  
Boston, Massachusetts 02109  
(617) 248-5000  
3877141\_1.DOC

Form PTO-1449  
(REV. 8-83)

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET:  
0492611-0529

APPLICATION No.:  
10/715,933

**INFORMATION DISCLOSURE STATEMENT**

(Use several sheets if necessary)

APPLICANT: Leslie BROMBERG, et al.

FILING DATE:  
November 17, 2003

EXAMINER: BENTON, J.  
GROUP: 3747

**U. S. PATENT DOCUMENTS**

EXAMINER INITIALS	DOCUMENT NUMBER	APPLICATION	ISSUE DATE	CLASS	SUB- CLASS

**FOREIGN PATENT DOCUMENTS**

EXAMINER INITIALS	DOCUMENT NUMBER	COUNTRY	DATE	TRANSLATION	
				YES	NO

EXAMINER  
INITIALS

**OTHER DOCUMENTS**

(Including Author, Title, Date, Pertinent Pages, etc.)

R. H. Stanglmaier, et al., "HCCI Operation of a Dual-Fuel Natural Gas Engine for Improved Fuel Efficiency and Ultra-Low NOx Emissions at Low to Moderate Engine Loads," *SAE Technical Paper Series* 2001-01-1897, May 2001.

T. Noda and D. E. Foster, "A Numerical Study to Control Combustion Duration of Hydrogen-Fueled HCCI by Using Multi-Zone Chemical Kinetics Simulation," *SAE Technical Paper Series* 2001-01-0250, March 2001.

S. Kimura, et al., "Ultra-Clean Combustion Technology Combining a Low-Temperature and Premixed Combustion Concept for Meeting Future Emission Standards," *SAE Technical Paper Series* 2001-01-0200, March 2001.

J. Martinez-Frias, et al., "HCCI Engine Control by Thermal Management," *SAE Technical Paper Series* 2000-01-2869, October 2000.

H. Suzuki, et al., "Exhaust Purification of Diesel Engines by Homogeneous Charge with Compression Ignition Part I: Experimental Investigation of Combustion and Exhaust Emission Behavior Under Pre-Mixed Homogeneous Charge Compression Ignition Method," *SAE Technical Paper Series* 970313, February 1997.

D. Flowers, et al., "Sensitivity of Natural Gas HCCI Combustion to Fuel and Operating Parameters Using Detailed Kinetic Modeling," *Proceedings of the ASME Advanced Energy Systems Division*, AES-39, eds. S.M. Aceves, S. Garimella and R Peterson, pp. 465-473 (1999).

P. L. Kelly-Zion and J. E. Dec, "A Computational Study of the Effect of Fuel Type on Ignition Time in HCCI Engines," *Proceedings of the Combustion Institute*, Vol. 28, Part 1, pp. 1187-1194 (2000).

L. Bromberg, A. Rabinovich, N. Alexeev, and D.R. Cohn, "Plasma Reforming Of Diesel Fuel," *Plasma Science and Fusion Center Report* PSFC-JA-99-004, presented at the March 1999 meeting of the American Chemical Society

L. Bromberg, A. Rabinovich, N. Alexeev and D.R. Cohn, "Plasma Catalytic Reforming Of Natural Gas," *Plasma Science and Fusion Center Report* PSFC-JA-99-016, presented at the March 1999 meeting of the American Chemical Society.

**EXAMINER**

**DATE CONSIDERED**

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.